



Response
Application No. 09/501,400
Attorney Docket No. 011503

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

LISTING OF THE CLAIMS:

Claim 1 (Currently Amended): An electronic tuning system comprising:
a voltage controlled oscillator for generating a local frequency signal having a frequency according to a predetermined control voltage;
an electronic tuner coupled to the voltage controlled oscillator for adjusting the predetermined control voltage to tune the local frequency signal to radio waves on an arbitrary channel in accordance with channel selection information;
a booster circuit coupled to the voltage controlled oscillator for boosting a source voltage to generate a boosted voltage in order to ensure the predetermined control voltage, wherein the booster circuit includes,
a coil coupled to a power source;
a switching element coupled to the coil for periodically conducting a DC current flowing through the coil to a ground to change the DC current;
a zener diode coupled to the coil for clamping an electromotive force induced in the coil in accordance with a change in the DC current flowing through the coil to a predetermined voltage; and



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a capacitor coupled to the zener diode for smoothing the clamped voltage to generate a boosted-voltage; and

a non-volatile memory for storing the channel selection information in response to a predetermined write voltage, wherein the boosted voltage of the booster circuit is utilized as the predetermined write voltage.

Claim 2 (Original): The electronic tuning system according to claim 1, wherein the electronic tuner includes:

a frequency divider coupled to the voltage controlled oscillator for dividing the local frequency signal in accordance with a predetermined frequency division ratio to generate a divided local frequency signal;

a phase comparator coupled to the frequency divider for comparing the frequency and phase of the divided local frequency signal with the frequency and phase of a reference frequency signal to generate a voltage signal proportional to the frequency difference and the phase difference; and

a low-pass filter coupled to the phase comparator for filtering a voltage signal to generate a filtered voltage signal, wherein the predetermined control voltage is generated by adding the boosted voltage to the voltage of the filtered voltage signal, and the channel selection information includes information on the predetermined frequency division ratio supplied to the frequency divider.

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Claim 3 (Original): The electronic tuning system according to claim 2, wherein the voltage controlled oscillator includes:

a varactor diode which varies its capacitance in response to the predetermined control voltage; and
a local oscillator coupled to the varactor diode for generating a local frequency signal having a frequency in accordance with the capacitance of the varactor diode.

Claim 4 (Cancelled).

Claim 5 (Original): The electronic tuning system according to claim 1, further comprising:

a voltage supply control circuit coupled to the booster circuit for supplying the boosted voltage to the non-volatile memory in response to a request for writing the channel selection information into the non-volatile memory.

Claim 6 (Original): The electronic tuning system according to claim 1, wherein the non-volatile memory includes a flash memory which receives the boosted voltage from the booster circuit to generate an erasure voltage and a write voltage.

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Claim 7 (Original): The electronic tuning system according to claim 1, wherein the non-volatile memory includes a voltage converter circuit coupled to the booster circuit for receiving the boosted voltage from the booster circuit to generate an erasure voltage and a write voltage.

Claim 8 (Original): The electronic tuning system according to claim 7, further comprising a voltage supply control circuit coupled between the booster circuit and the voltage converter circuit for supplying the boosted voltage to the voltage converter circuit in response to a request for writing the channel selection information into the non-volatile memory.

Claim 9 (Currently Amended): A radio receiver comprising:
a voltage controlled oscillator for generating a local frequency signal having a frequency in accordance with a predetermined control voltage;
a mixer coupled to the voltage controlled oscillator for mixing a received signal with a local frequency signal to generate a mixed frequency signal;
an intermediate frequency filter coupled to the mixer for filtering the mixed frequency signal to generate an intermediate frequency signal;
a detector circuit coupled to the intermediate frequency filter for demodulating the intermediate frequency signal to an audio signal;

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an electronic tuner coupled to the voltage controlled oscillator for adjusting the predetermined control voltage to tune the local frequency signal to radio waves on an arbitrary channel in accordance with channel selection information;

a booster circuit coupled to the voltage controlled oscillator for boosting a source voltage to generate a boosted voltage in order to ensure a predetermined control voltage, wherein the booster circuit includes,

a coil coupled to a power source;

a switching element coupled to the coil for periodically conducting a DC current flowing through the coil to a ground to change the DC current;

a zener diode coupled to the coil for clamping an electromotive force induced in the coil in accordance with a change in the DC current flowing through the coil to a predetermined voltage; and

a capacitor coupled to the zener diode for smoothing the clamped voltage to generate a boosted voltage; and

a non-volatile memory for storing the channel selection information in accordance with a predetermined write voltage, wherein the boosted voltage of the booster circuit is utilized as the predetermined write voltage.

Claim 10 (Original): The radio receiver according to claim 9, wherein the electronic tuner includes:

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a frequency divider coupled to the voltage controlled oscillator for dividing the local frequency signal in accordance with a predetermined frequency division ratio to generate a divided local frequency signal;

a phase comparator coupled to the frequency divider for comparing the frequency and phase of the divided local frequency signal with the frequency and phase of a reference frequency signal to generate a voltage signal proportional to the frequency difference and the phase difference; and

a low-pass filter coupled to the phase comparator for filtering a voltage signal to generate a filtered voltage signal, wherein the predetermined control voltage is generated by adding the boosted voltage to the voltage of the filtered voltage signal, and the channel selection information includes information on the predetermined frequency division ratio supplied to the frequency divider.